

CLAIMS

1. An image compression method comprising:
a preprocessing step of preprocessing input image data; and
a data compressing step of performing a data compression processing
on preprocessed image data, wherein

said preprocessing step includes: a filtering region dividing step of
dividing said input image data into a plurality of filtering regions; and a
filtering step of attenuating a high frequency component of said input image
data in at least one part of said filtering regions for each of said filtering
regions,

said data compressing step includes: a block region dividing step of
dividing said preprocessed image data into a plurality of block regions, each
shape of which is rectangular; an orthogonal transforming step of performing
an orthogonal transform processing said image data for each of said block
regions; and a quantizing step of quantizing said image data that has been
subjected to said orthogonal transform processing for each of said block
regions, and

each of said filtering regions is a cluster consisting of one or more
adjacent rectangular regions, each of the rectangular regions being obtained
by equally dividing each of said block regions by 2^n (where n is a natural
number) and each having a size of two or more pixels.

2. An image compression apparatus comprising:
preprocessing means for preprocessing input image data; and
data compressing means for performing a data compression

processing on preprocessed image data, wherein

said preprocessing means includes: filtering region dividing means for dividing said input image data into a plurality of filtering regions; and filtering means for attenuating a high frequency component of said image data in at least one part of said filtering regions for each of said filtering regions,

said data compressing means includes: block region dividing means for dividing said preprocessed image data into a plurality of block regions, each shape of which is rectangular; orthogonal transforming means for performing an orthogonal transform processing on said image data for each of said block regions; and quantizing means for quantizing said image data that has been subjected to said orthogonal transform processing for each of said block regions, and

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2^n (where n is a natural number) and each having a size of two or more pixels.

3. The image compression apparatus according to claim 2, wherein said filtering means performs a unifying processing for making pixel data within each of said filtering regions coincident with one another.

4. The image compression apparatus according to claim 2, wherein said filtering region dividing means divides said input image data into said filtering regions each at a size coincident with a size of each of said

block regions.

5. The image compression apparatus according to claim 2, wherein said data compressing means includes coding means for performing an entropy coding on a quantized DC coefficient based on a quantized DC coefficient of an adjacent block region of said block regions, and said filtering region dividing means divides said input image data into said filtering regions each consisting of two or more adjacent block regions.

6. The image compression apparatus according to claim 2, wherein said filtering region dividing means divides said input image data into said filtering regions each smaller than each of said block regions.

7. The image compression apparatus according to claim 2, wherein said filtering region dividing means divides said input image data into said filtering regions of two or more types different in size.

8. The image compression apparatus according to claim 2, further comprising:

an image data output terminal for outputting said preprocessed image data.

9. An image transmission system in which a preprocessing apparatus is connected to a data compression apparatus through a first communication

line, and in which said data compression apparatus is connected to a data expansion apparatus through a second communication line, wherein

said preprocessing apparatus includes: filtering region dividing means for dividing input image data into a plurality of filtering regions; filtering means for attenuating a high frequency component of said image data by performing a filtering processing on at least one part of said filtering regions; and data transmitting means for transmitting said image data that has been subjected to said filtering processing to the first communication line,

said data compression apparatus includes: block region dividing means for dividing preprocessed image data into a plurality of block regions, each shape of which is rectangular; orthogonal transforming means for performing an orthogonal transform processing on said image data for each of said block regions; quantizing means for quantizing said image data that has been subjected to said orthogonal transform processing for each of said block regions; and data transmitting means for transmitting encoded image data to said data expansion apparatus through said second communication line, and

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2^n (where n is a natural number) and each having a size of two or more pixels.

10. The image transmission system according to claim 9, further comprising:

an image display apparatus that is connected to said first communication line, and that displays said preprocessed image data.

11. A data compression preprocessing apparatus for preprocessing image data input to a data compression apparatus that divides said input image data into a plurality of block regions, each shape of which is rectangular, and that performs an orthogonal transform and a quantization on said input image data for each of the block regions, the data compression preprocessing apparatus comprising:

filtering region dividing means for dividing said input image data into a plurality of filtering regions; and

filtering means for attenuating a high frequency component of said image data in at least one part of said filtering regions for each of said filtering regions, wherein

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2^n (where n is a natural number) and each having a size of two or more pixels.

12. A computer program for preprocessing image data input to a data compression apparatus that divides said input image data into a plurality of block regions, each shape of which is rectangular, and that performs an orthogonal transform and a quantization on said input image data for each of said block regions, the computer program comprising procedures for executing:

a filtering region dividing step of dividing said input image data into a plurality of filtering regions; and

a filtering step of attenuating a high frequency component of said input image data in at least one part of said filtering regions for each of said filtering regions, wherein

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2^n (where n is a natural number) and each having a size of two or more pixels.